



Electric Fencing Workshop

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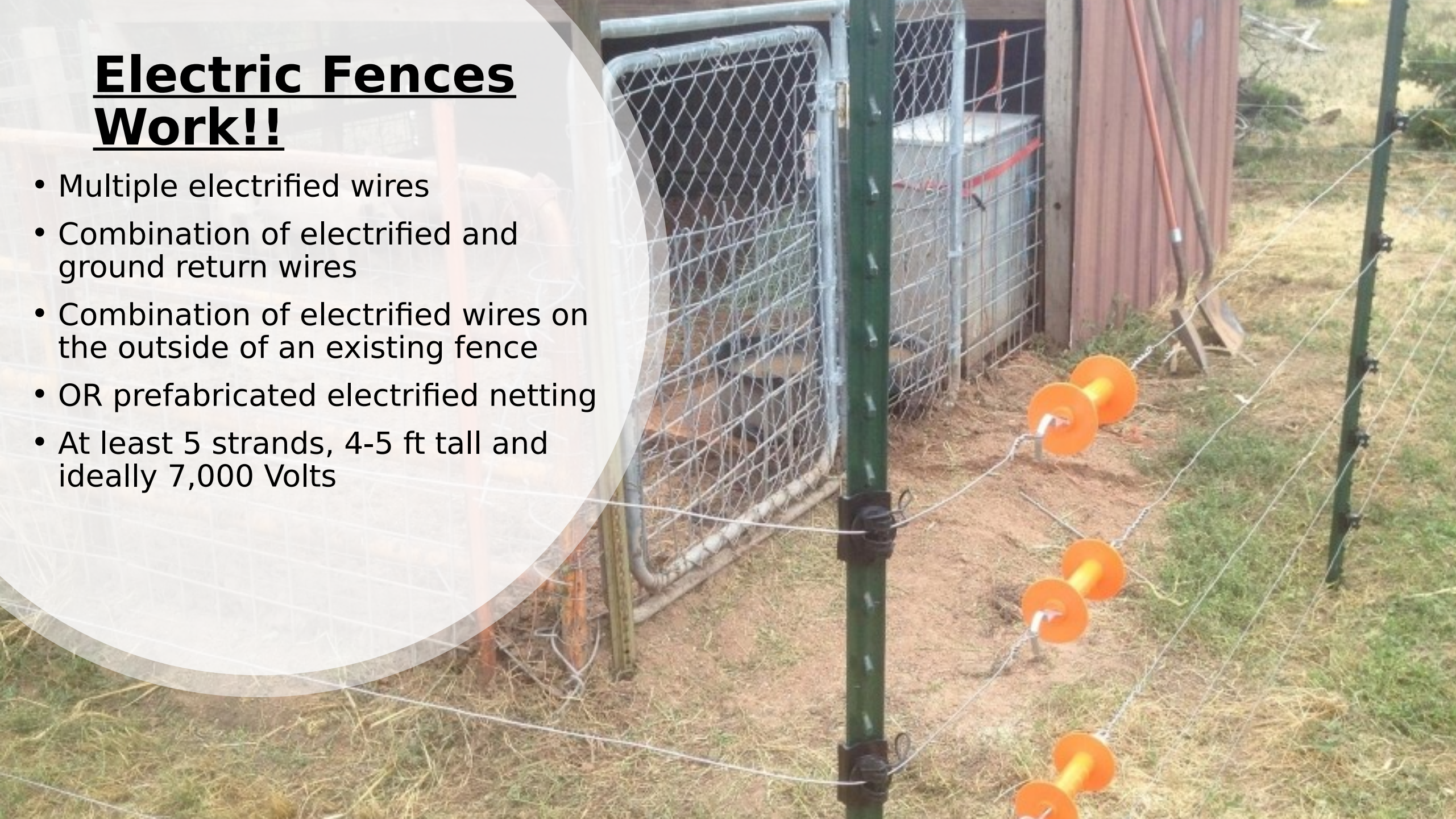


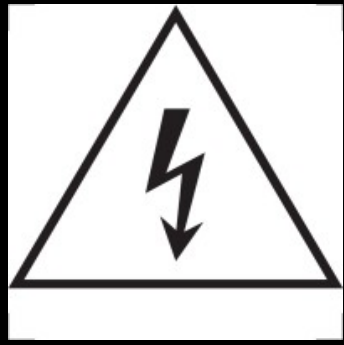
What Can you use an Electric Fence for??

- Fruit Trees
- Chicken Coops
- Livestock Pens
- Livestock Food
- Dog Pens
- Compost
- Harvested Game
- Seasonal Cabins
- Back Country Camps
- Garbage Containers
- Beehives
- Birdfeeders
- Porches
- Sheds
- Yurts
- Gardens
- Outdoor Freezers
- Refrigerators
- Smokers
- Airplanes

Electric Fences **Work!!**

- Multiple electrified wires
- Combination of electrified and ground return wires
- Combination of electrified wires on the outside of an existing fence
- OR prefabricated electrified netting
- At least 5 strands, 4-5 ft tall and ideally 7,000 Volts

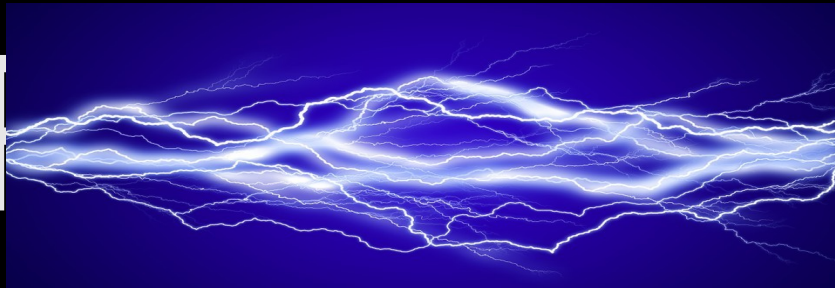




A Quick Explanation of Electric Definitions

- **Joule**--equal to the work done by a force of one newton when its point of application moves one meter in the direction of action of the force, equivalent to one 3600th of a watt-hour.
- **Volt**--the difference in electric potential between two places.
1 volt = 1 Joule per coulomb
- **Coulomb**--equal to the quantity of electricity conveyed in one second by a current of one ampere. (One **ampere** is equal to the flow of one **coulomb** of a charge **in a** second)

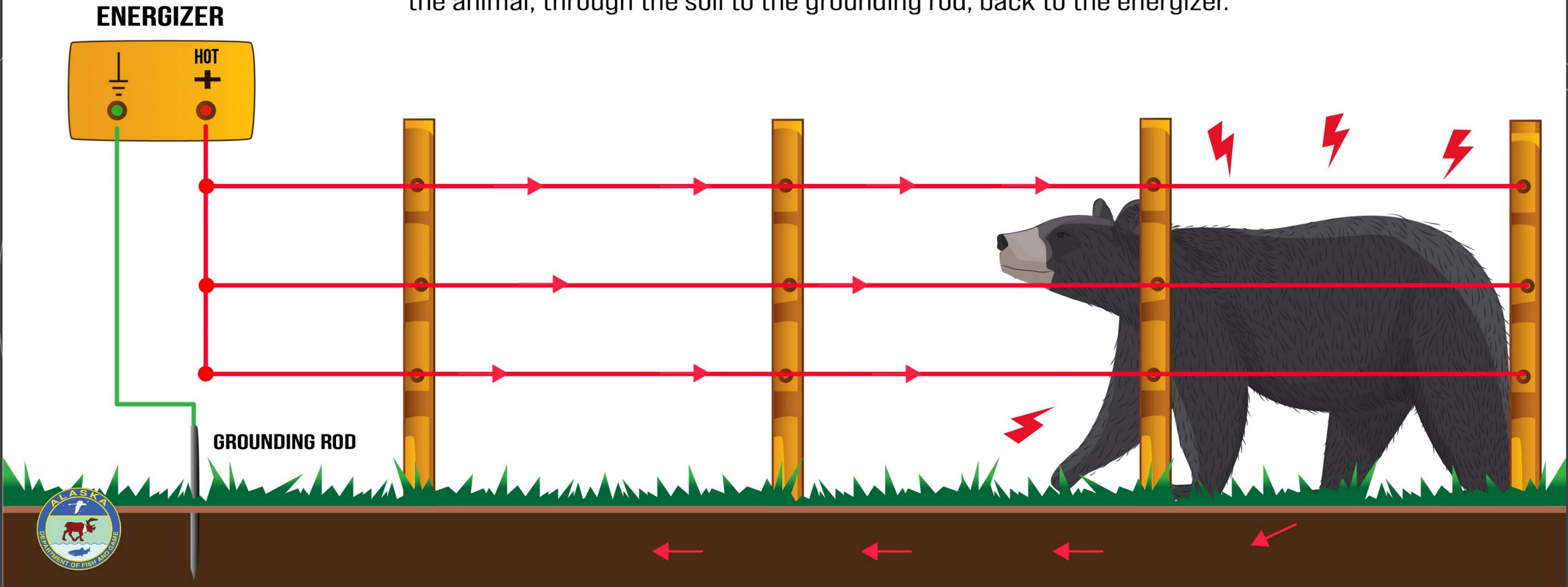
$V = \frac{E}{Q}$



$$E_{(J)} = V_{(V)} \times Q_{(C)}$$

HOT ELECTRIC FENCE SYSTEM

Recommended for damp, conductive, soils. Fence wires are connected to the hot/positive terminal of the energizer; a grounding rod is connected to the ground terminal. If an animal touches a fence wire, current flows through the animal, through the soil to the grounding rod, back to the energizer.

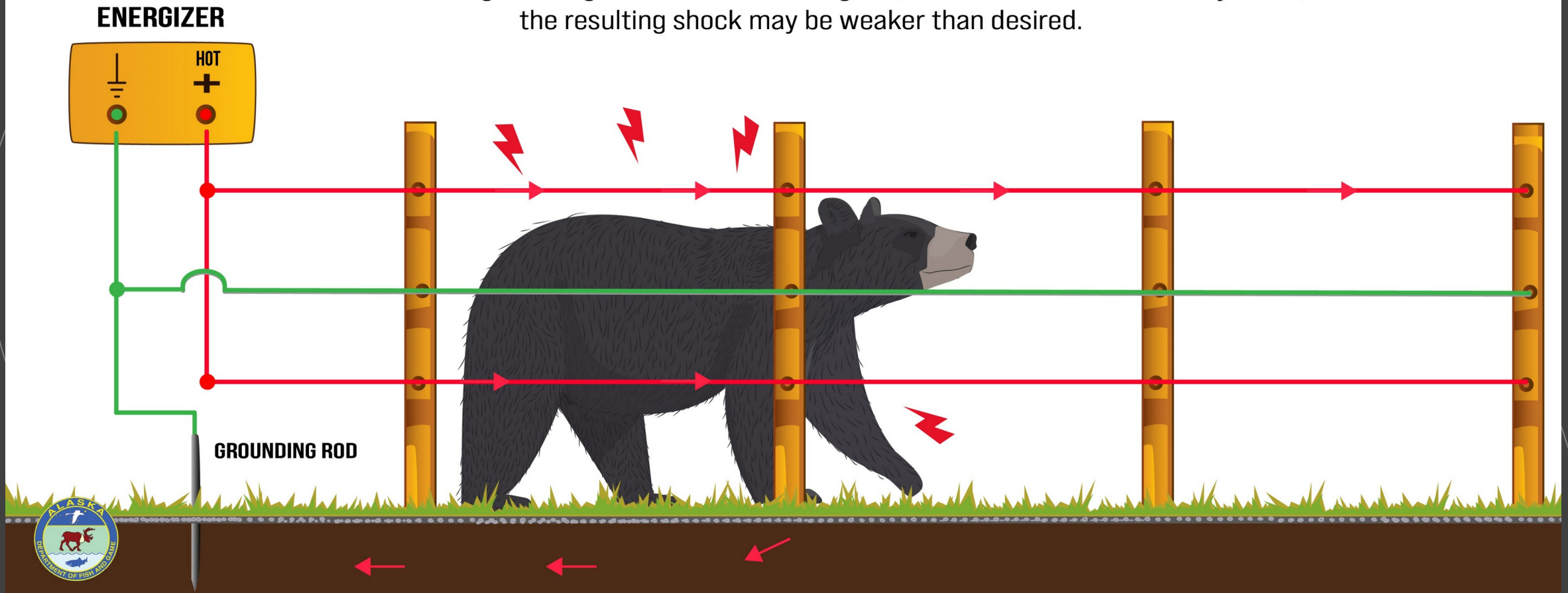


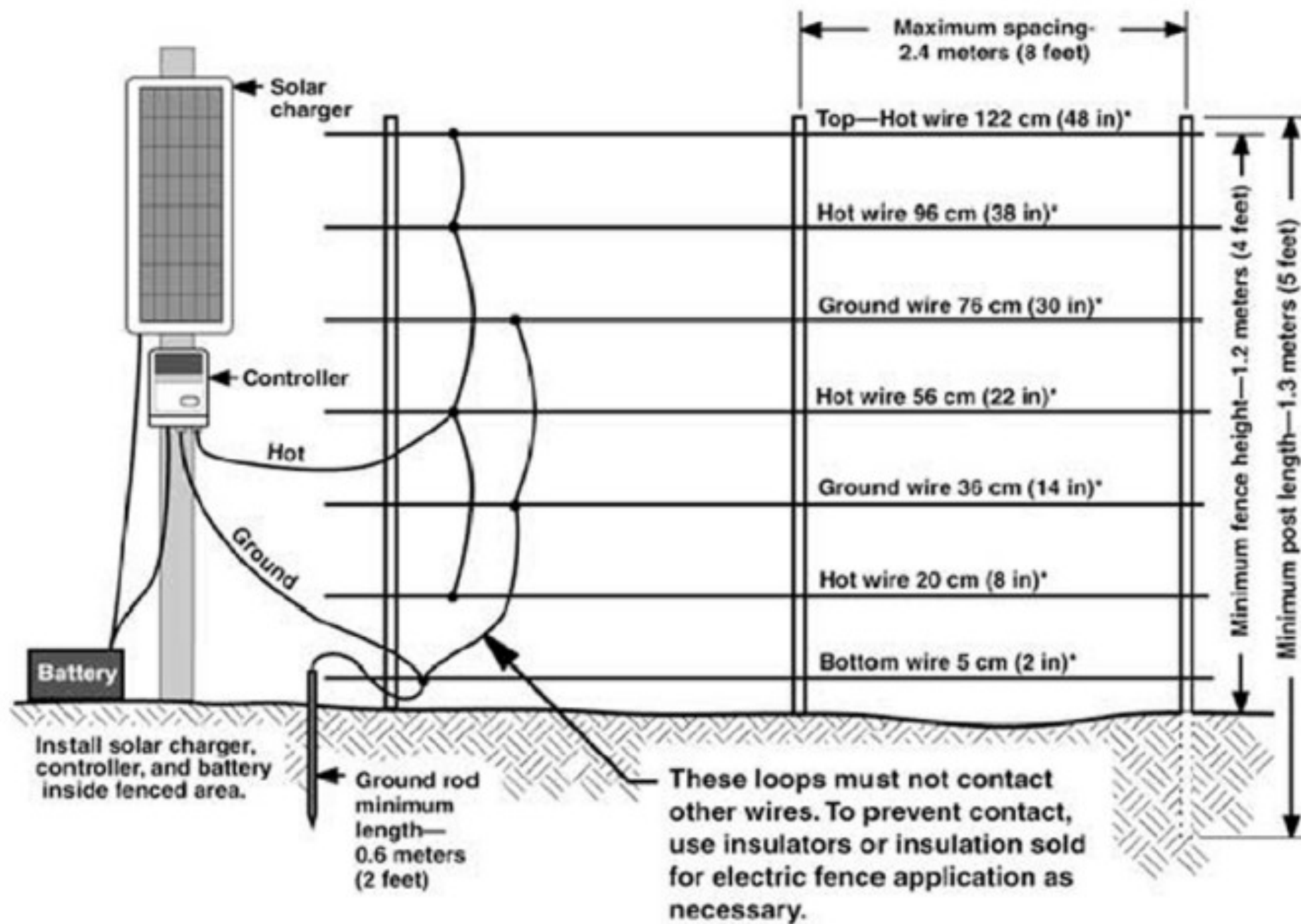
HOT/GROUND ELECTRIC FENCE SYSTEM

Recommended for less-conductive soil, such as sand or gravel, dry soil, or frozen soil. A fence with three wires is diagramed below; a fence using five wires is ideal. Some fence wires are connected only to the hot/positive terminal of the energizer.

Alternate fence wires — and a grounding rod — are connected to the ground terminal of the energizer. If an animal simultaneously touches hot and grounded fence wires, current flows through the animal and the wire back to the energizer.

If the animal touches only a hot wire, current may still flow through the animal, and through the soil and the grounding rod back to the energizer; however, if soil conductivity is low, the resulting shock may be weaker than desired.





Parts of an Electric Fence

- 1) Energizer
- 2) Conductors
- 3) Fence Posts
- 4) Ground Rod(s)
- 5) Insulators and Gate
Handles
- 6) Tester

Fence Energizers



110V-AC



DC Battery



Solar with
rechargeable DC
Battery



AC Low Impedance

- Least costly type and cheapest to buy and operate
- Standard pulse rate of 50-60 pulses per minute
- Receives consistent power and requires less maintenance
- More sensitive to the outside environment



DC Battery

- 12 Volt or 6 Volt systems
 - Deep Cycle or Marine Battery
- More versatile for placement and use
- More costly when the price of the battery is included
- Usually a slower pulse rate (recommended 45-60 pulses per minute)
- Requires more regular maintenance

Solar



- Consists of a solar panel directly attached to a rechargeable battery and DC energizer
- Often sold as a single unit
- Solar panels can be bought separately and used with an existing DC Charger.
 - Make sure array is large enough to keep battery charged
- Solar panels need sun!!!

Conductors

- Aluminum
- Stainless Steel
- Polywire
- Turbo Wire
- Poultry Netting
- Polytape

Distance	Perimeter Length*
1/4 acre	417 feet
1/2 acre	590 feet
3/4 acre	722 feet
1 acre	835 feet
2 acres	1181 feet
3 acres	1446 feet
4 acres	1670 feet
5 acres	1867 feet
10 acres	2640 feet
20 acres	3743 feet
40 acres	5280 feet
50 acres	5903 feet
*These distances are based on square-shaped perimeters. Shape of area will vary the perimeter of the fence	

Temporary



- Polyethylene wire
 - Polywire, Polytape, Turbowire, Poultry Netting
- Multiple strands of wire braided within a polyethylene rope.
- Flexible, strong, easy to deploy and store.
- Ideally 9 strands of wire within the poly
- Will degrade and break over time after long exposures to sun



Permane

- Wire

- Galvanized smoothed steel
 - Strong, durable, but rigid
- Aluminum
 - Lightweight, easy to work with, breaks after repeated bending.
- MaxiShock Wire
- 12-14-gauge wire
 - Longer distances smaller gauge wire, up to 10 gauge

Field Guardian
12 1/2 GA
Aluminum



Patriot Aluminum
Wire



Bekaert
Galvanized

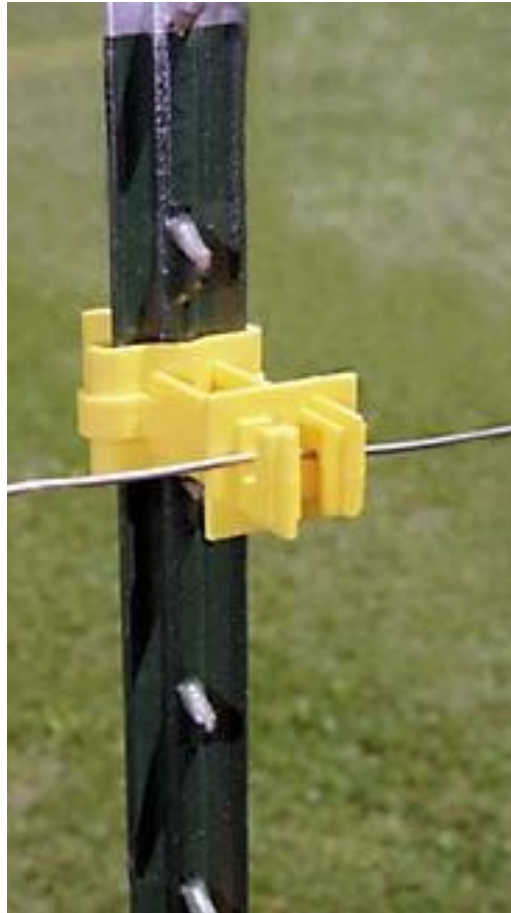


MaxiShock

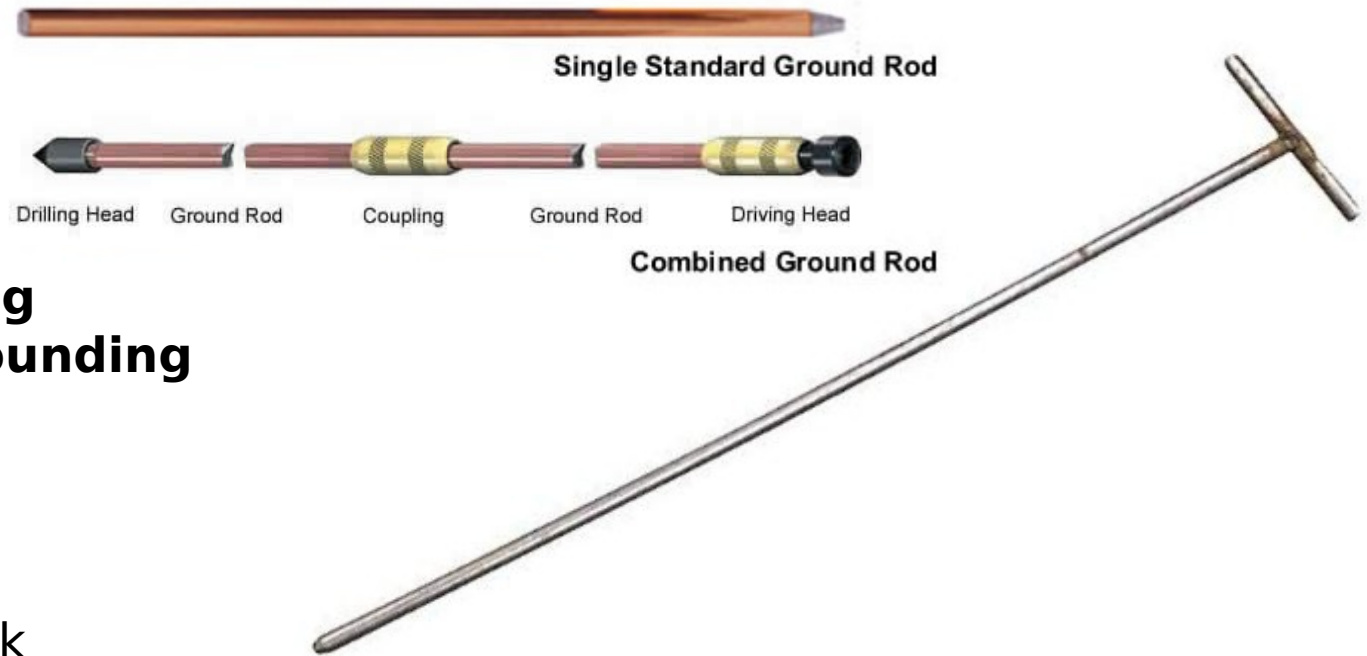


Fence Posts

- Reinforced Polypropylene
- Wood
- Metal T-Posts
- Fiberglass

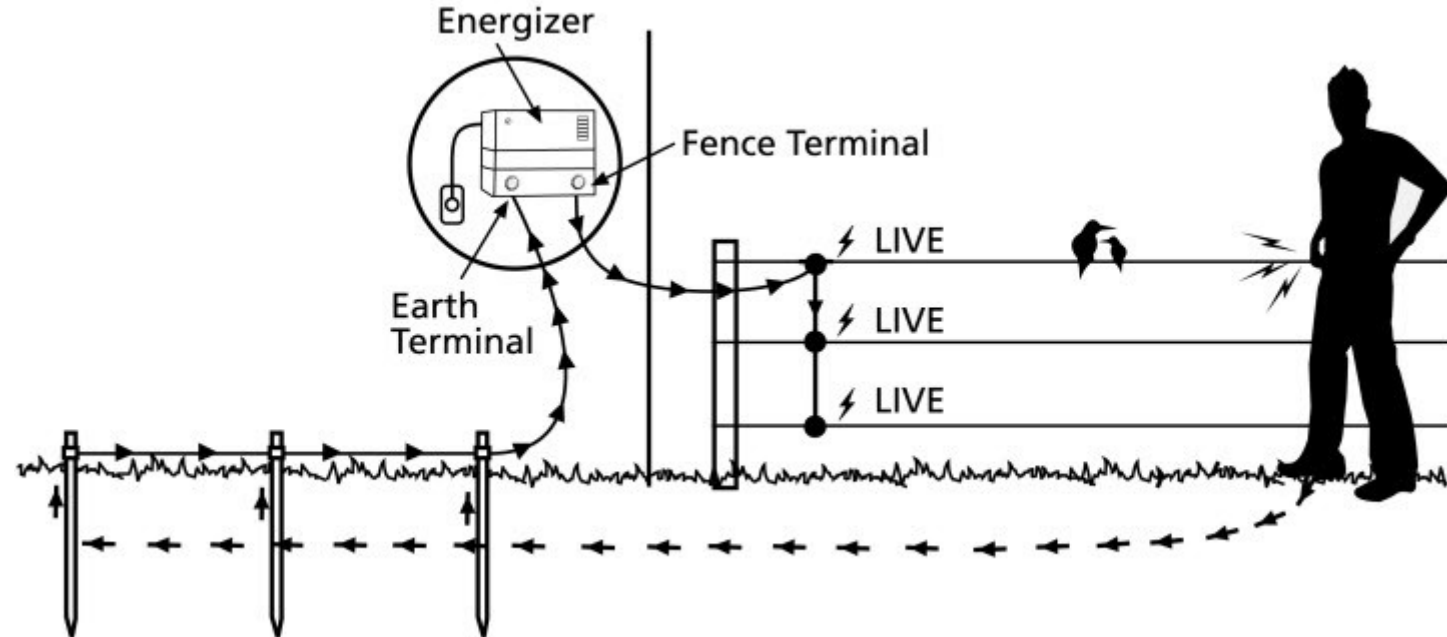


Grounding Rod

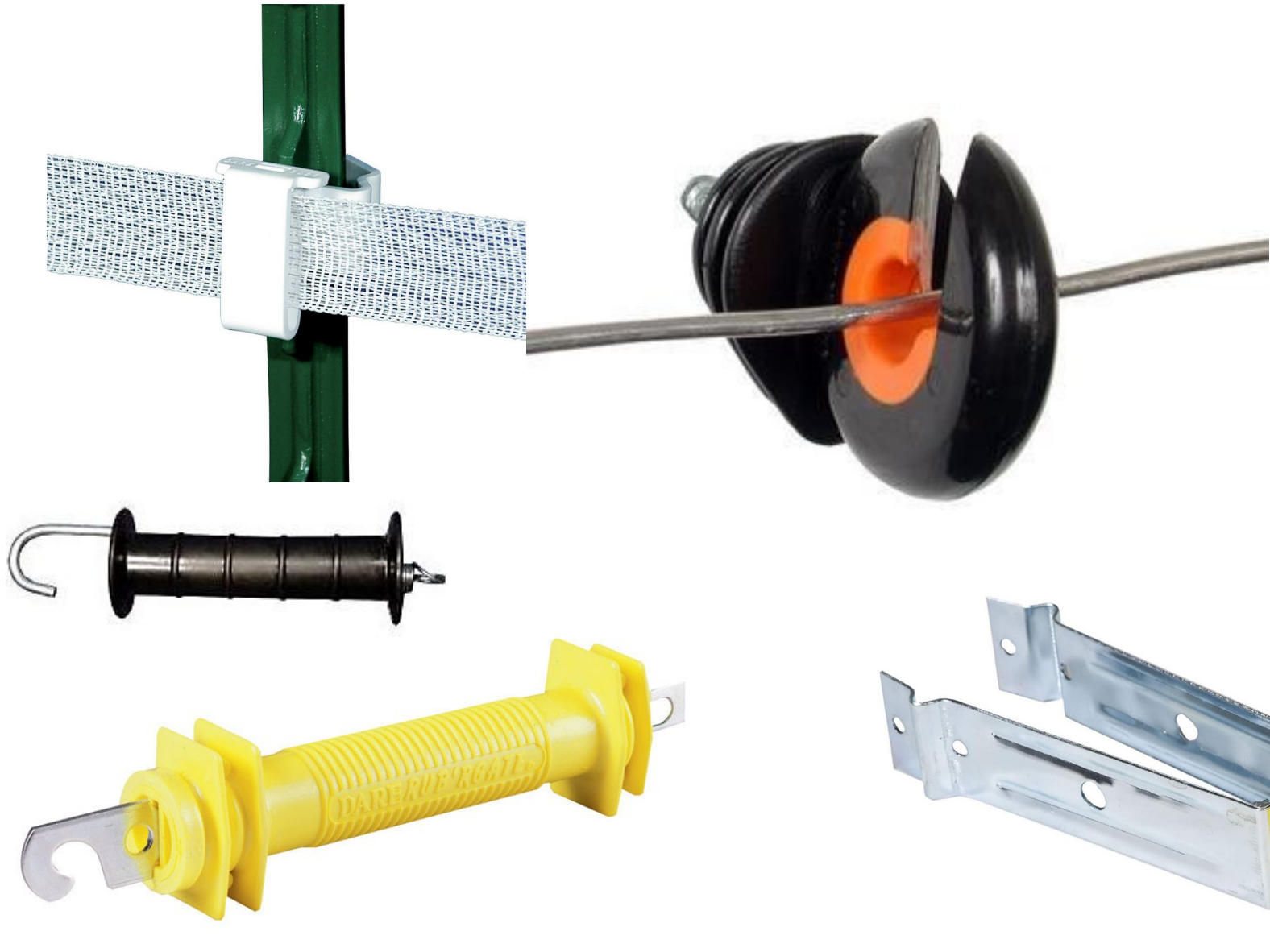


Over 90% of problems with electrifying fences is attributed to insufficient grounding

- 4' long and ½" in diameter
- Moist ground
- The better the ground, the better the shock



Insulators and Gate H



Tester

Maintenance requires testing your fence on all wires after installation and through its uses period to insure functionality .



Common Questions about Electric Fencing

Are electric fences a fire hazard?

No, While energizers used to have a fire hazard risk, modern energizers do not have this same risk. Short pulses and low amperage have improved the safety when it comes to starting fires.

Common Questions about Electric Fencing

Are electric fences safe for people and animals?

Yes, because electricity pulsates rather than flow constantly and the energizer provides a shock at low impedance and low amperage, you cannot get “stuck” to the wire.

Common Questions about Electric Fencing

Is electric fencing more expensive than a standard barbed wire fence?

No. In fact when comparing costs, a well built 5 strand electric fence versus the same quality and size barbed wire fence, the electric fence will be about $\frac{2}{3}$ the cost of the standard barbed wire fence.

Common Questions about Electric Fencing

Will I get shocked by an electric fence if I am wearing rubber boots?

No, the rubber acts as an insulator keeping the electricity from grounding and therefore not completing the circuit.

*unless you touch the ground with you hand providing a grounding route for the electricity.

Common Questions about Electric Fencing

If wood is an insulator, why can I not wrap the wire around the post instead of using a separate insulator.

Wood is a good insulator, and this would prove functional until it rains, or the wood gets wet which would short the whole system.

Common Questions about Electric Fencing

If I jump in the air and while I am in the air, I touch the electric fence, will I still get shocked?

No, you are not “grounded” and therefore not completing the circuit. This is the same reason that birds can sit on electrified wires and not get shocked.

Questions?



Thank you

